



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,703	07/07/2003	Fuaida Harun	SC12793MP	5066
23125	7590	09/13/2005	EXAMINER	
FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST PARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			WILLIAMS, ALEXANDER O	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/613,703	<b>Applicant(s)</b> HARUN ET AL.	
	<b>Examiner</b> Alexander O. Williams	<b>Art Unit</b> 2826	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 18-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 to 8 and 10 to 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

Serial Number: 10/613703    Attorney's Docket #: SC12793MP  
Filing Date: 7/7/2003;

Applicant: Harun et al.

Examiner: Alexander Williams

Applicant's Amendment filed 7/11/05 to the election without traverse of Species IV (figure 6) (claims 1 to 8 and 10 to 17), filed 2/15/2005, has been acknowledged.

This application contains claims 9 and 18 to 27 drawn to an invention non-elected without traverse.

Claims 1 to 8 and 10 to 17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear and confusing to what is meant by and what shows "the land area has **at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire on the land area.**" What material(s) makes up or what material(s) represent the photo mask area? Where and what is the sharp edge that assists a pattern recognition system of a wire bonder?

In claim 10, it is unclear and confusing to what is meant by and what shows "the land area has **at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire on the land area.**" What material(s) makes up or what material(s) represent the photo mask area? Where and what is the sharp edge that assists a pattern recognition system of a wire bonder?

Any of claims 1 to 8 and 10 to 17 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Initially, it is noted that the 35 U.S.C. § 103 rejection based on a photo area and the substrate deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

**Claims 1, 3-8, 10 and 12-17, insofar as they can be understood,**  
are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohuchida (U.S.  
Patent Application Publication # 2003/0082848 A1).

1. Ohuchida (figures 1 to 12) specifically figures 4G and 7A show a bonding pad electrically coupled to a via **112** that extends from one side of a substrate **102** to an opposing side of a substrate, the bonding pad comprising: a photo mask area (102 portion around 112); a clearance area (open area within 102) located within the photo mask area; a land area **122**, located within the clearance area, for receiving at least one insulated bond wire, and wherein at least one of the photo mask area, the clearance area and the land area has at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire **110** on the land area, and wherein the photo mask area, the clearance area and the land area surround the via; and a plug **108** located within the via, wherein the at least one insulated bond wire is electrically coupled to the via.

3. The bonding pad of claim 1, Ohuchida show wherein the land area comprises a conductive metal.

4. The bonding pad of claim 3, Ohuchida show wherein the conductive metal comprises at least one of copper, gold, silver and aluminum.

5. The bonding pad of claim 1, wherein the photo mask area and the clearance area are generally rectangular (see figure 9A).

6. The bonding pad of claim 5, Ohuchida show wherein the land area is generally rectangular.

7. The bonding pad of claim 6, Ohuchida show wherein the land area has a plurality of sharp edges that assist the pattern recognition system of the

Art Unit: 2826

wire bonder in locating the land area and attaching the at least one bond wire thereto (see figures 7A-9B).

8. The bonding pad of claim 7, Ohuchida show wherein the land area has one or more cut outs on each side that are perpendicular to the side and extend toward the via (see figures 7A-9B).

10. Ohuchida (figures 1 to 12) specifically figures 4G and 7A show a bonding pad electrically coupled to a via **112** that extends from one side of a substrate **102** to an opposing side of a substrate, the bonding pad comprising: a photo mask area (**102 portion surrounding 112**) surrounding the via; a clearance area (**opening within 102**) located within the photo mask area and surrounding the via; a land area **122**, located within the clearance area and surrounding the via, for receiving at least one bond wire, wherein at least one of the photo mask area, the clearance area and the land area has at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire **110** on the land area.

12. The bonding pad of claim 10, Ohuchida show wherein the land area comprises a conductive metal.

13. The bonding pad of claim 12, Ohuchida show wherein the conductive metal comprises at least one of copper, gold, silver and aluminum.

14. The bonding pad of claim 10, Ohuchida show wherein the photo mask area and the clearance area are generally rectangular (see figure 9A).

15. The bonding pad of claim 14, Ohuchida show wherein the land area is generally rectangular (see figure 9A).

16. The bonding pad of claim 15, Ohuchida show wherein the land area has a plurality of sharp edges (see figures 7A-9B).

17. The bonding pad of claim 16, Ohuchida show wherein the land area has one or more cut outs on each side thereof that are perpendicular to the side and extend toward the via (see figures 7A-9B).

Therefore, it would have been obvious to one of ordinary skill in the art to use the photo area and the substrate as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claims 1-4 and 10-13, **insofar as they can be understood**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (U.S. Patent # 5,612,576).

1. Wilson et al. (figures 1 to 3) specifically figure 1 show a bonding pad electrically coupled to a via **32** that extends from one side of a substrate **12** to an opposing side of a substrate, the bonding pad comprising: a photo mask area **12**; a clearance area **12** located within the photo mask area; a land area **14**, located within the clearance area, for receiving at least one insulated bond wire **26**, and wherein at least one of the photo mask area, the clearance area and the land area has at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire on the land area, and wherein the photo mask area, the clearance area and the land area surround the via; and a plug located within the via, wherein the at least one insulated bond wire is electrically coupled to the via.
2. The bonding pad of claim 1, Wilson et al. show wherein the clearance area comprises BT.
3. The bonding pad of claim 1, Wilson et al. show wherein the land area comprises a conductive metal.
4. The bonding pad of claim 3, Wilson et al. show wherein the conductive metal comprises at least one of copper, gold, silver and aluminum.
10. Wilson et al. (figures 1 to 3) specifically figure 1 show a bonding pad electrically coupled to a via **32** that extends from one side of a substrate **12** to an opposing side of a substrate, the bonding pad comprising: a photo mask area **12** surrounding the via; a clearance area **12** located within the photo mask area and surrounding the via; a land area **14**, located within the clearance area and surrounding the via, for receiving at least one bond wire, wherein at least one of the photo mask area, the clearance area and the land area has at least one sharp edge that assists a pattern recognition system of a wire bonder in locating the at least one bond wire on the land area.
11. The bonding pad of claim 10, Wilson et al. show wherein the clearance area comprises BT.
12. The bonding pad of claim 10, Wilson et al. show wherein the land area comprises a conductive metal.

Art Unit: 2826

13. The bonding pad of claim 12, Wilson et al. show wherein the conductive metal comprises at least one of copper, gold, silver and aluminum.

Therefore, it would have been obvious to one of ordinary skill in the art to use the photo area, clearance area and the substrate as "merely a matter of obvious engineering choice" as set forth in the above case law.

## Response

Applicant's arguments filed 7/11/05 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/774,668,700,701,758,702,698,690-693,784,786 361/767,768,262,782,719 174/252,259,255,266 29/846	9/9/05
Other Documentation: foreign patents and literature in 257/774,668,700,701,758,702,698,690-693,784,786 361/767,768,262,782,719 174/252,259,255,266 29/846	9/9/05
Electronic data base(s): U.S. Patents EAST	9/9/05

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams  
Primary Examiner  
Art Unit 2826

AOW  
9/9/05